User's Guide

TRENDnet



Powerline 500 AV Nano Adapter with Built-In Outlet
Powerline 500 AV Nano Adapter Kit with Built-In Outlet

TPL-407E / TPL-407E2K

Contents

Product Overview



TPL-407E



TPL-407E2K

Package Contents

TPL-407E package includes:

- 1 x TPL-407E: Powerline 500 AV Nano Adapter with Built-In Outlet
- Quick Installation Guide
- CD-ROM (Utility & User's Guide)
- Network cable (1.5 m / 5 ft.)

TPL-407E2K package includes:

- 2 x TPL-407E: Powerline 500 AV Nano Adapters with Built-In Outlet
- Quick Installation Guide
- CD-ROM (Utility & User's Guide)
- 2 x Network cables (1.5 m / 5 ft.)

Features

The Powerline 500 AV Nano Adapter with Built-In Outlet, model TPL-407E, uses existing electrical lines to create a secure high speed network. Two adapters are needed to start a network. Connect one adapter to your router and plug another adapter into an outlet on your electrical system for instant high speed network access.
The compact form factor saves space and offers an additional electrical outlet, built into the front of the housing to power computers and other devices. A noise filter maintains optimum connection speeds when devices such as computers, televisions, and gaming consoles create electrical background noise.

This adapter automatically connects to other TRENDnet Powerline AV adapters with no installation required —TRENDnet recommends pressing the 'Sync' button to automatically change default encryption keys. Use up to 8 adapters to network devices in different rooms without running new cabling. Power Save mode reduces power consumption by up to 80%. Quality of Service technology prioritizes video, audio, and online gaming. LED displays convey device status for easy troubleshooting. Advanced 128-bit AES encryption secures your network. This adapter is ideal for use in buildings that interfere with wireless networking signals.

- Compliant with IEEE1901 and HomePlug AV standards
- High speed networking over an existing electrical system
- 1 x 10/100Mbps Auto-MDIX Ethernet port
- 1 x built-in electrical power socket
- Adapters automatically connect using an encrypted Powerline signal
- One-touch Sync button changes encryption keys
- Three LED indicators:
- Power (on/off)
- Powerline Connection: green (best), amber (better), red (good), off(no connection)
- Ethernet Connection: solid (connection), blinking (activity), off (no connection)
- Advanced electrical noise filter boosts performance
- Connect one 500Mbps** Powerline AV Adapter to the Internet and then plug in up to 7* additional 500Mbps** Powerline AV adapters for instant connectivity
- Share data intensive files, play games, download music and more at faster data transfer rates
- Advanced 128-bit AES encryption to ensure total network security
- Support for IPv6

- Supports up to 16** IGMP based IPTV streams
- Power Save mode reduces electrical consumption by up to 80%
- Neighbor network support for up to 4 overlapping networks
- Network signal transmits up to 300 meters (984ft.)
- Auto QoS support through traffic classification and multiple priority queuing
- Optional management utility compatible with Windows 7 (32/64-bit), Vista (32/64-bit), and XP (32/64-bit) operating systems

* Maximum of 8 adapters (nodes) recommended for streaming video across your network.

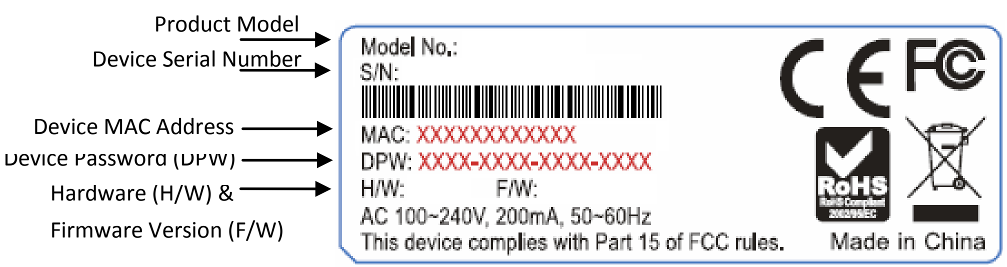
** 500Mbps is the maximum theoretical Powerline data rate. Actual throughput will vary depending on environment.

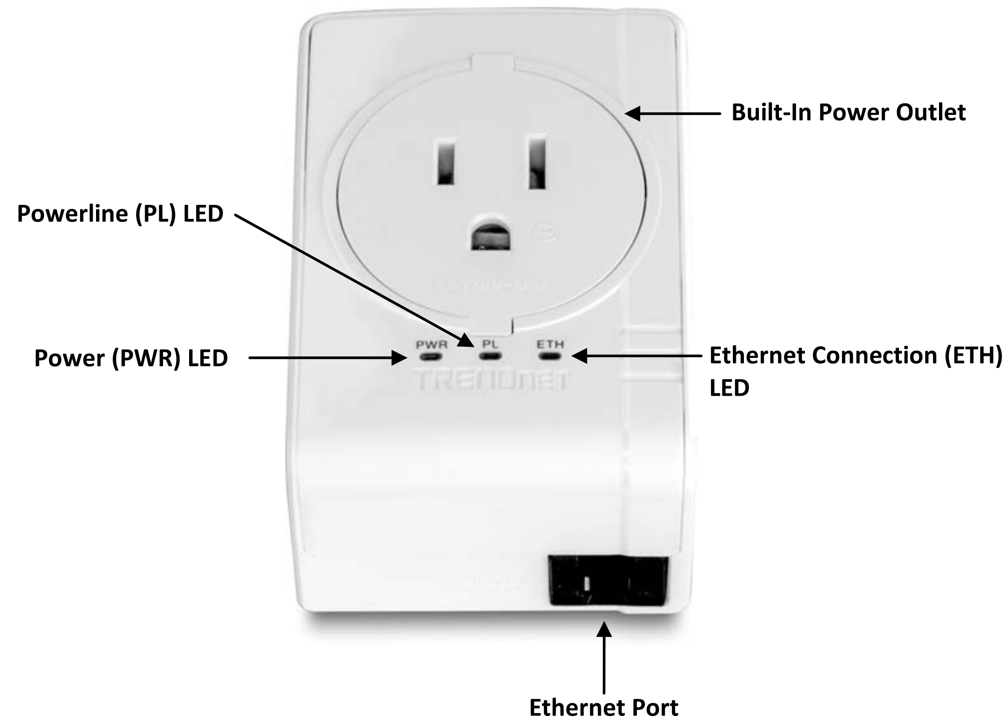
*** Networked Powerline devices need to be plugged into power outlets that are on the same electrical system.

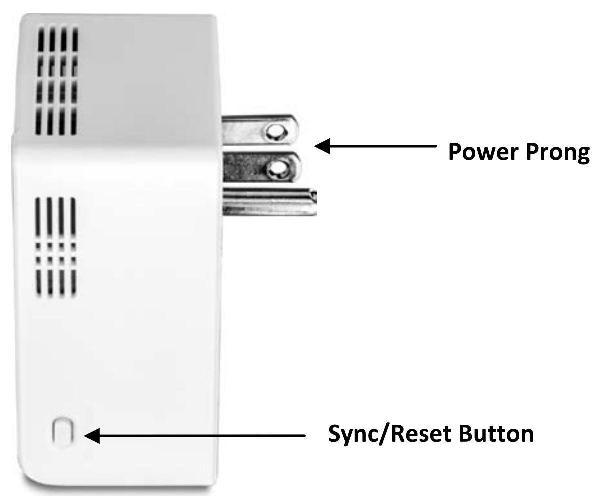
**** GFCI outlets and AFCI circuit breakers may degrade Powerline network signals.

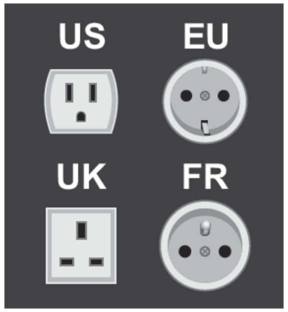
Product Hardware Features

Device Label









- **Ethernet Port -** Connect an Ethernet cable (also called network cable) from your Powerline adapter Ethernet port and to your computer or network device.

- **Sync/Reset Button –** Changes the default encryption key or resets the unit to factory defaults. See table below for function.

Button	Action	Function
Sync / Reset (see the section Using the Sync Button for instructions)	**Sync** Push/hold for 3 seconds, then release	Initiate Sync/Connection and generate random network name/key (PWR LED will start blinking). ***Note:*** *The secondary or additional Powerline adapter's Sync button must also be pushed within 2 minutes (120 sec) of pushing the Sync button on the first adapter in order to establish connectivity.*
	Reset Push/Hold for 20 seconds, then release	Reset device to factory defaults (All LEDs will turn off and turn back on). Note: Will reset to the factory default private network name "HomePlug AV".

- **Power Prong** – Plugs into an available power outlet.

- **Diagnostic LEDs –** Indicates the device status and connectivity.

  Note: *Powerline (PL) LED color indicates the strength and quality of the Powerline connection through the electrical system.*

- **Built-In Power Outlet –** Allows powered devices to be plugged and also filters out noise sources of powered to device to prevent interference or performance degradation to Powerline signal connectivity and performance.

  Note: *The built-in power outlet has a maximum current load rating of 16A.*

LED	Color	Sequence	Definition
PWR (Power)	Green	Solid	Device powered on
	N/A	Off	Device powered off
PL (Powerline)	Green	Solid	Powerline connected (Connection quality is Best)
		Blinking	Syncing or Powerline data transmitting/receiving (Connection quality is Best)
	Amber	Solid	Powerline connected (Connection quality is Better)
		Blinking	Powerline data transmitting/receiving (Connection quality is Better)
	Red	Solid	Powerline connected (Connection quality is Good)
		Blinking	Powerline data transmitting/receiving (Connection quality is Good)
	N/A	Off	Powerline is not synced or connected
ETH (Ethernet Connection)	Green	Solid	10/20 Mbps , 100/200Mbps (Half/Full Duplex) connected
		Blinking	10/20 Mbps , 100/200Mbps (Half/Full Duplex) data transmitting/receiving
	N/A	Off	Port disconnected/no Ethernet link

Note: *The following factors may affect the Powerline network's connection quality:*

- ***Noise*** *– Generated by appliances which use your electrical system (e.g. Microwaves, ovens, blow dryer, iron, dishwasher, etc.). The quality of your household electrical wiring may also cause additional noise on your electrical system.*
- ***Distance*** *– Long lengths of electrical wiring through your electrical system between connected Powerline adapters.*

Power Saving: The device will automatically reduce power usage when the connected device via Ethernet is powered off, unplugged or inactive for more than 5 minutes. The device will return to active mode when the connected device via Ethernet is powered on and the link is active.

Application Diagram

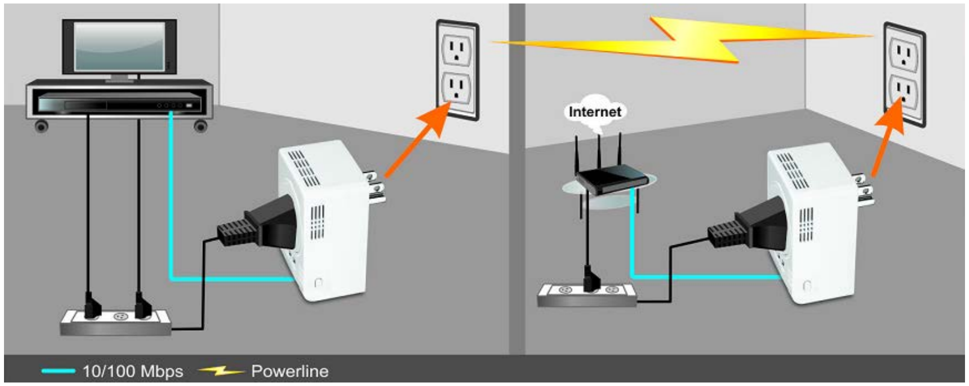


Diagram Explanation:

The first Powerline unit (on right) is networked to a router which is in turn connected to a modem (typically from your Internet Service Provider (ISP)) which provides Internet connectivity. A second Powerline unit (on left) is plugged into a wall power outlet near a media center and is connected to a network game console and another network enabled media device such as a network enabled media player to provide Internet connectivity. The extra built-in outlet on each Powerline unit allows for powered devices (such as router, TV, or network enabled media device) to be plugged in or through an additional power strip leaving the other power outlet available for use. Using the extra built-in outlet also provides noise filtering capabilities to help boost your powerline connectivity and performance.

Installing your Powerline Adapters

Before you Install

1. Before you proceed with the installation, verify the following:

- You already have a router already installed.
- You already have Internet access through your existing network.
- An Ethernet port (also called LAN port) is available on your router.
- Verify that you have at least two Powerline adapters. You will need at least two Powerline adapters to create a Powerline network.

  Note: *The TPL-407E package only includes a single Powerline adapter. Please ensure that your other Powerline adapter is HomePlug® AV or IEEE 1901 compliant (e.g. TRENDnet models TPL-303E, TPL-304E, TPL-305E, TPL-306E, TPL-307E, TPL-308E, TPL-309E, TPL-310AP, TPL-401E, TPL-402E, TPL-405E,TPL-406E or another TPL-407E.)*

2. Plan the location of where you will install your Powerline adapters.

- Avoid plugging the adapters into power strips, extension cords, or surge protectors as this may prevent the adapter from functioning correctly or degrade performance.
- Avoid plugging the adapters into wall power outlets that are controlled by a light switch to prevent the Powerline adapter from being turned off accidentally.
- Avoid plugging the adapters into wall power outlets that are located near appliances that consume a lot of power (e.g. refrigerators, washers, dryers) as this may degrade performance.
- Make sure there is an available wall power outlet in the room where the router is installed and also near the router.
- Make sure there is an available wall power outlet in the room where you want to extend network connectivity.

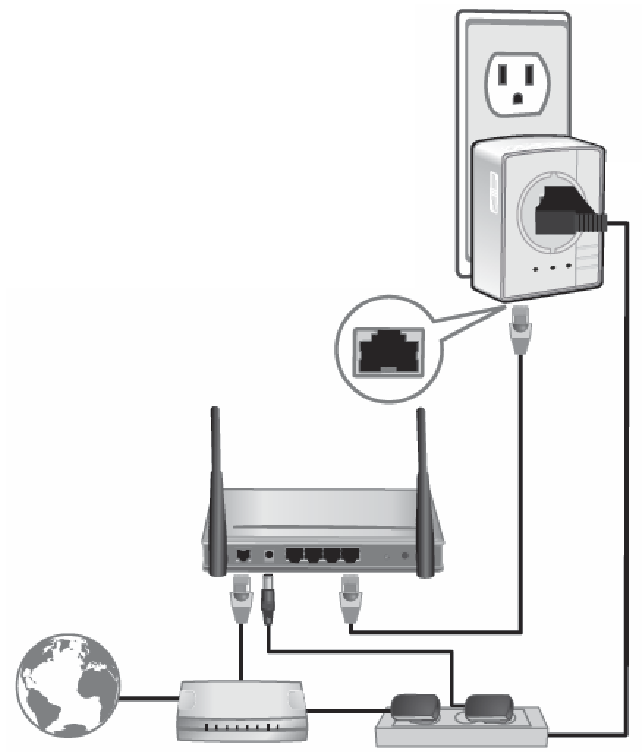
Connect a Powerline adapter to your router

1. Plug the Powerline adapter into an available wall power outlet near your router.

Note: *This will allow devices connected to your Powerline network to access the Internet and other devices connected to your network.*

2. Connect the included Ethernet cable (also called network cable) from the Ethernet port (also called network port) of your Powerline adapter to an available Ethernet port (also called LAN port) on your router.

3. Once the Powerline adapter is installed and connected to your router, verify that the **Power (PWR) LED** is on or blinking and the **Ethernet Connection (ETH) LED** is on or blinking.



Add adapters to your network

Once you have installed and connected the first Powerline adapter to your router, you can easily extend your network to other rooms by adding additional Powerline adapters.

To extend your network using an additional Powerline adapter:

1. First, make sure the first Powerline adapter is installed and connected to your router.

Note: *This will allow devices connected to your Powerline network to access the Internet and other devices connected to your network. See "Connect a Powerline adapter to your router" on* *page 5*.

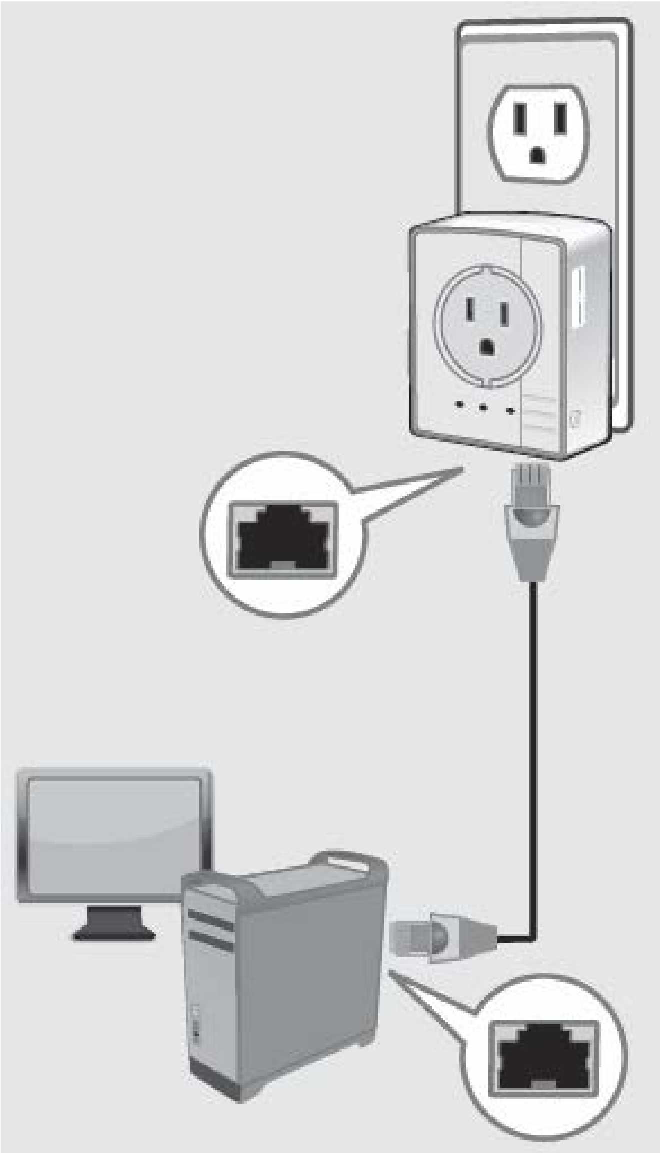
2. Plug the additional Powerline adapter into an available wall power outlet in another room near a computer or network device (e.g. game consoles, network-enabled TVs, network attached storage, network media server/players, etc.) that you would like to connect to your network.

3. Connect the included Ethernet cable from the Ethernet port on your Powerline adapter to the to the Ethernet port of your computers or network devices.

4. After the additional Powerline adapter is connected and installed to your computer or network device, wait for the **Powerline (PL) LED** to turn on. After the **Powerline (PL) LED** turns on, verify that the **Power (PWR) LED** is on, the **Powerline (PL) LED** is on or blinking, and the **Ethernet Connection (ETH) LED** is on or blinking.

Note: *To verify that your Powerline adapters are connected successfully to your network, you can check if the computer(s) or network device(s) can access the Internet through your Powerline network.*

To install additional Powerline adapters in other rooms, repeat the steps above for each adapter.



Securing your Powerline Network

Powerline networks consist of two or more Powerline devices connected together using the same encryption key. TRENDnet Powerline adapters automatically connect to each other over a secure encrypted signal and share the same encryption key (Default encryption key: HomePlugAV).

In order for your Powerline devices to connect to the same Powerline network, the same encryption key must be assigned to all Powerline devices in that network. Powerline devices that are not assigned the same encryption key will not be able to connect to the Powerline network.

For additional security, TRENDnet recommends changing adapter default encryption key to prevent a neighbor with a Powerline adapter and the same default encryption key from gaining access to your network.

***Note:** After the default encryption key has been changed and the Powerline adapters have been connected using a new encryption key, the Powerline adapters will retain their security settings when they are unplugged and moved to a new location. No additional reconfiguration of the Powerline adapters is needed after the default encryption has been changed.*

There are two methods to change the default encryption key:

- Use the physical **Sync** button on your Powerline adapter to generate a random encryption key. See "Using the Sync Button" on page 7.

  ****Recommended method****

  OR

- Create a customized encryption key for your Powerline network using the included Powerline Utility. See "Using the Utility" on page 11.

  *****If users first use the Sync button method, the adapters will need to be reset to factory defaults in order to change setting using the Powerline Utility****

Using the Sync button

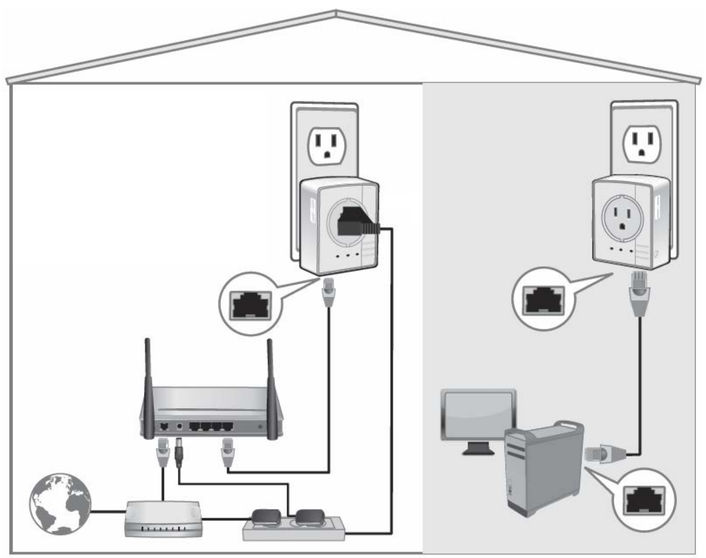
Change your default encryption key using the Sync button

The physical **Sync** button on the Powerline adapter provides an easy method of changing the default encryption key. The **Sync** button generates a random encryption key for your Powerline network. To create a customized encryption key, see "Using the Utility" on page 11.

***Note:** The default encryption key assigned to TRENDnet Powerline adapters is **HomePlugAV**. Before changing the default encryption, please ensure that your Powerline adapters are already installed and connected using the default encryption key.*

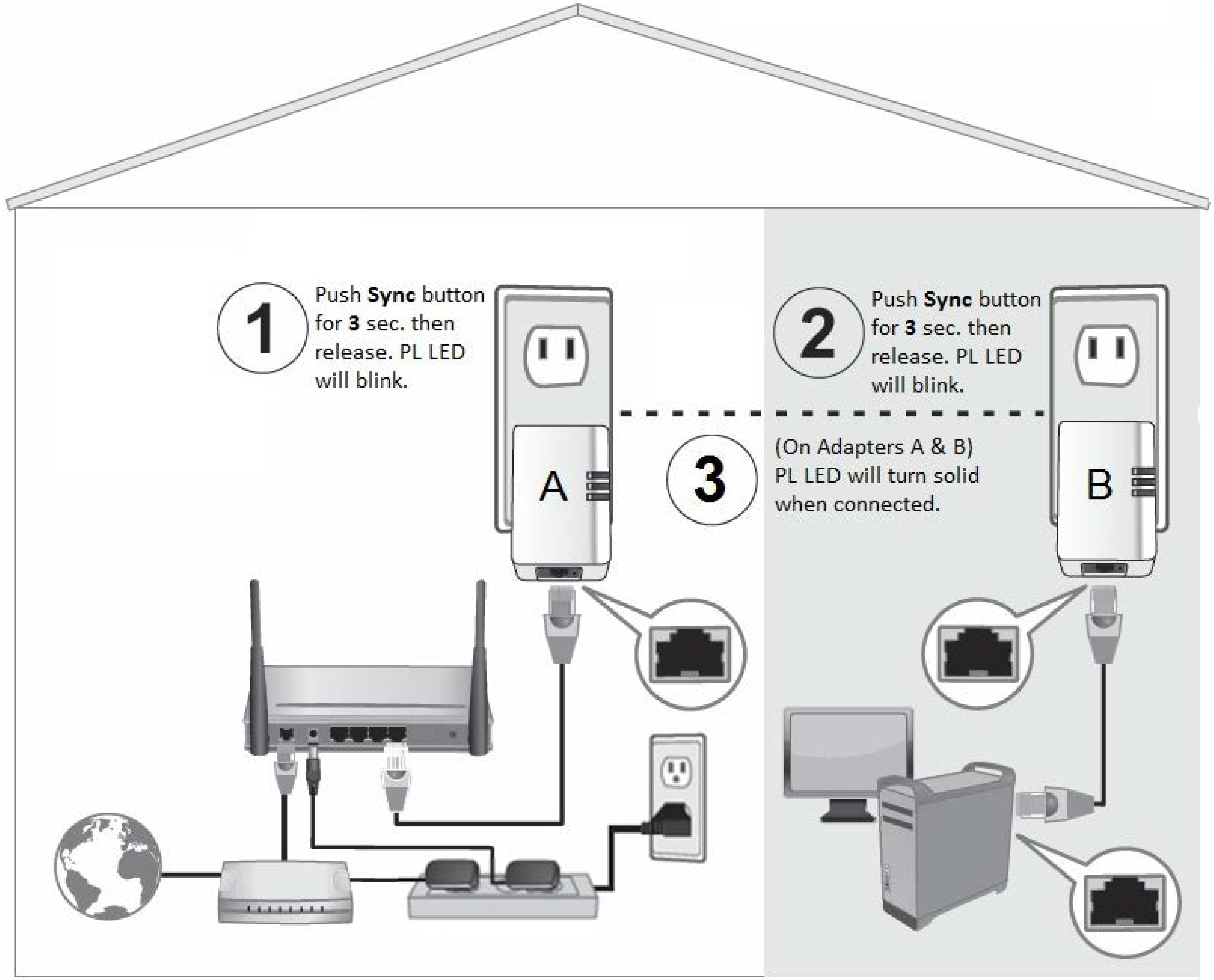
See "Installing your Powerline Adapters" on page 5.

Important Note: When using the Sync Button to change the default encryption key, it is highly recommended to plug the adapters into nearby outlets first and follow the Sync button procedure before installing the adapters in the desired locations.



The Sync button procedure below applies to the following TRENDnet models: **TPL-303E / TPL-304E / TPL-308E** / **TPL-309E** / **TPL-406E** / **TPL-407E**

Note: *The product images in the diagram below may not accurately illustrate your exact Powerline model.*



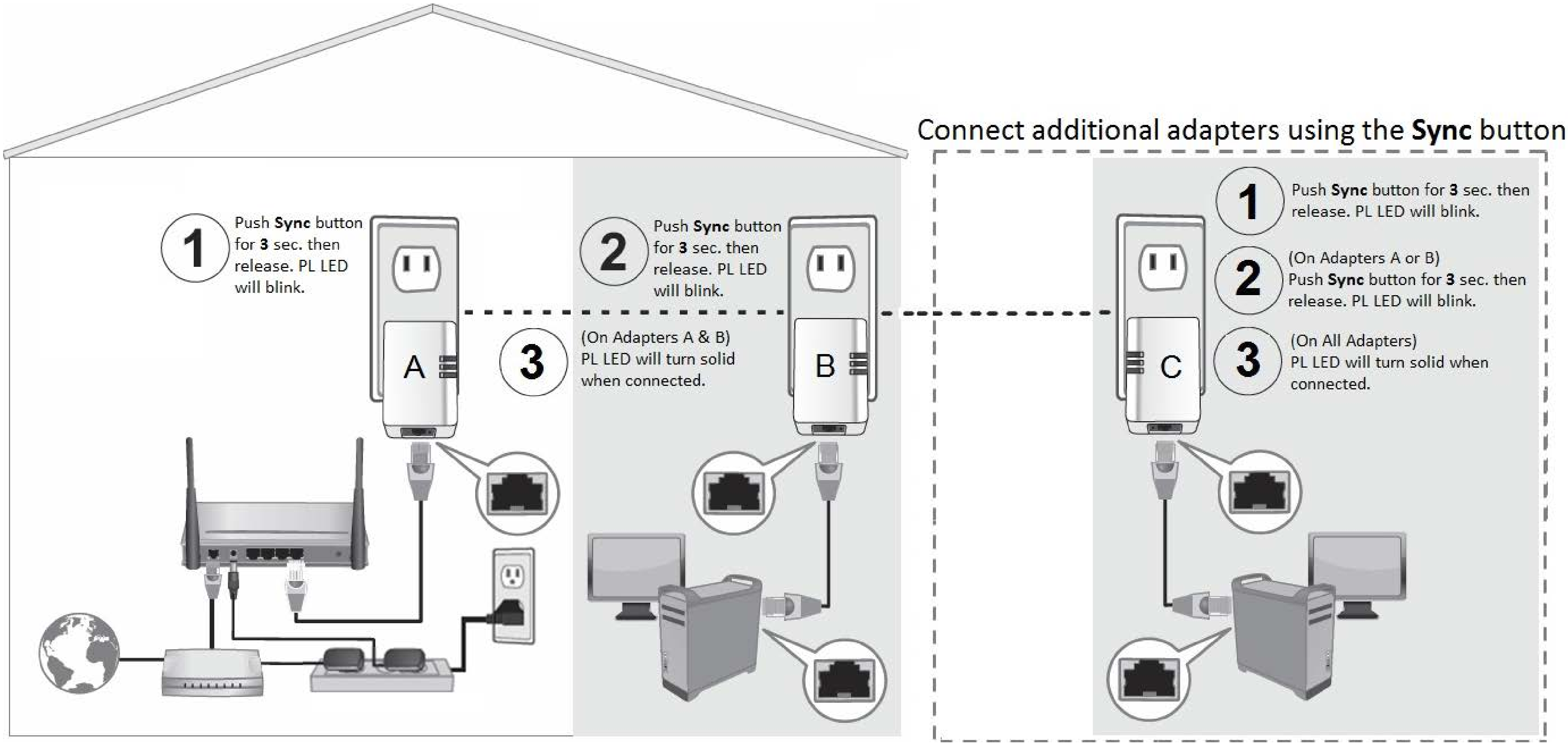
Add adapters using the Sync button

If you have changed the default encryption key assigned to your adapters, additional adapters will not automatically connect to your Powerline network after they are plugged into a wall power outlet. For any additional adapters, you will need to use the **Sync** button to connect any additional adapters to use the same encryption key of your existing Powerline network.

Use the procedure (Adapter C) below to connect additional adapters. Repeat the procedure (Adapter C) below for each additional adapter you add to your network.

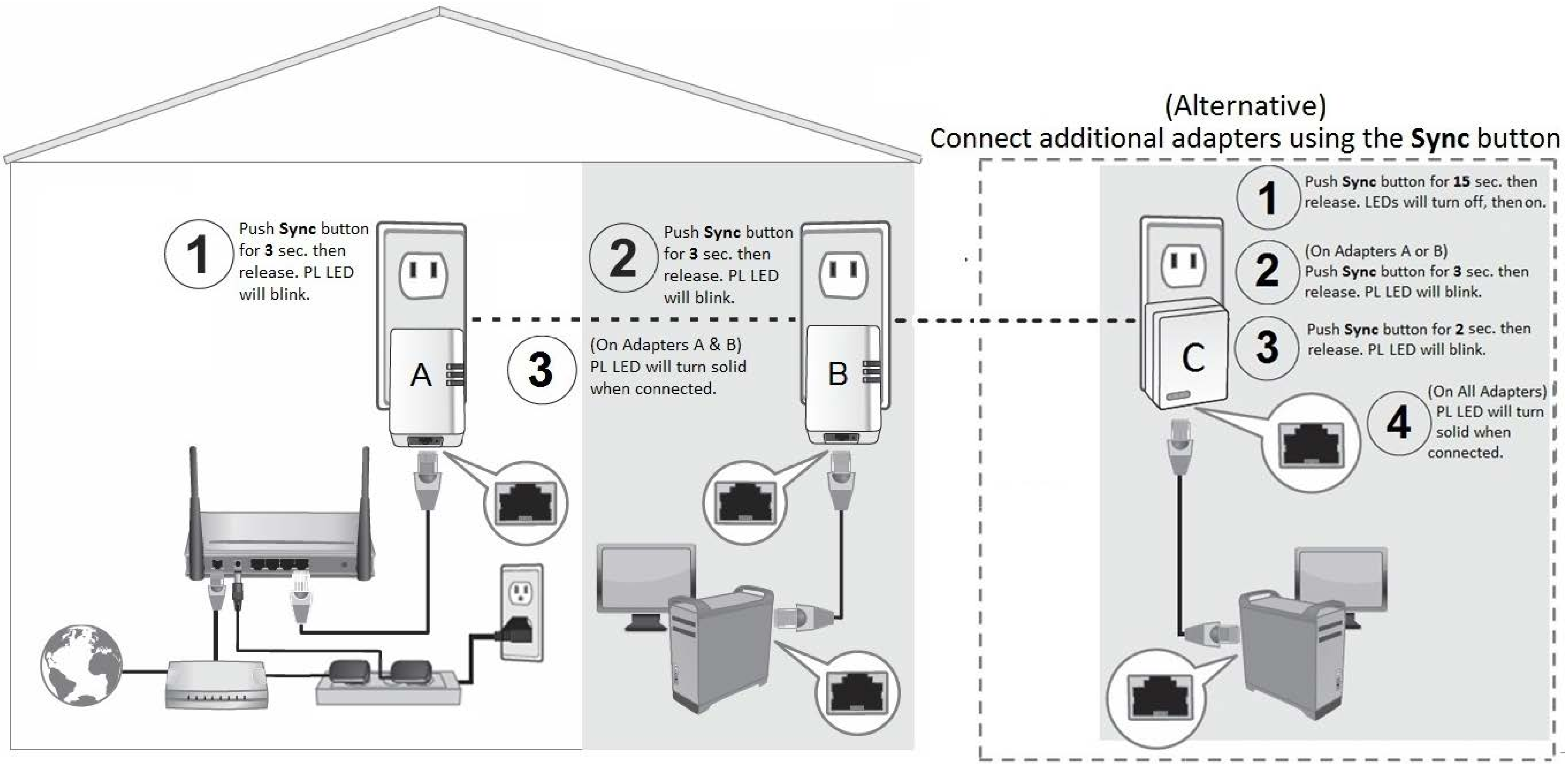
The Sync button procedure below applies to the following TRENDnet models: **TPL-303E / TPL-304E / TPL-308E** / **TPL-309E** / **TPL-406E** / **TPL-407E**

Note: *The product images in the diagram below may not accurately illustrate your exact Powerline model.*



If adding TRENDnet adapter models (Adapter C) not listed in the previous page, please follow the Alternative Sync button procedure below.

The Alternative Sync button procedure applies to the following TRENDnet Models: **TPL-305E** / **TPL-306E** / **TPL-307E** / **TPL-310AP** / **TPL-401E** / **TPL-402E** / **TPL-405E**
Use the procedure (Adapter C) below to connect additional adapters. Repeat the procedure (Adapter C) below for each additional adapter you add to your network.
Note: *The product images in the diagram below may not accurately illustrate your exact Powerline model.*



Using the Powerline Utility

The Powerline Utility allows you to do the following:

- Create a customized encryption key for your Powerline network and apply it to multiple Powerline adapters at the same time.
- View the Powerline adapters connected to your network (using the MAC address) and the approximate connection quality and speed of each Powerline adapter.
- View and upgrade Powerline adapter firmware.

  Note: *Link speed displayed in the utility of your Powerline adapters to another through your electrical system is estimated. Actual link speed may vary.*

Before installing and using the utility, please ensure the following:

- *Write down the **Device Password (DPW)** (16-digit characters A-Z only) and **MAC Address** (12-digit characters a-f, A-F, 0-9) of each Powerline adapter as this will be required to change the encryption key for multiple Powerline adapters. See "Product Hardware Features" on* *page 2*.
- *Make sure your computer in which you are installing the utility is connected to your network and your Powerline adapters are also connected to your network.*
- *If you have changed your encryption key using the **Sync** button and you are creating a customized encryption key, it is required to reset all Powerline devices to factory defaults using the physical **Reset** button on your Powerline adapter first before using the utility. See "Product Hardware Features" on* *page 2*.
- *Please ensure that your Powerline adapters are already installed and connected and the Ethernet port on each adapter is connected to a device powered on.*

Powerline Utility System Requirements

- Windows 7 (32/64-bit), Windows Vista (32/64-bit), or Windows XP (32/64-bit)
- Microsoft® .NET Framework 2.0 installed (Included with CD installation) Software Installation

1. Insert the included CD-ROM into your computer's CD-ROM drive.

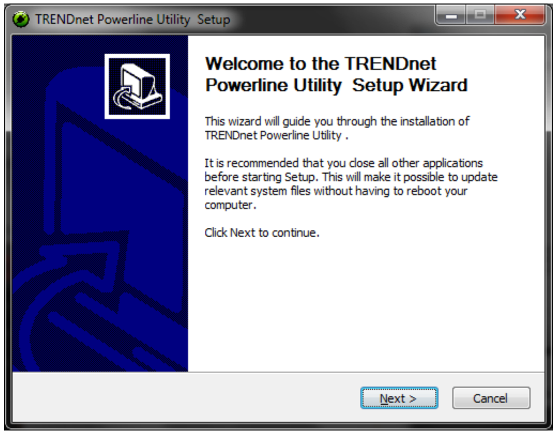
2. At the CD Autorun Prompt window, click *Run Autorun.exe* .

Note: *If the Autorun prompt does not appear automatically, open the CD contents and double-click Autorun.exe.*

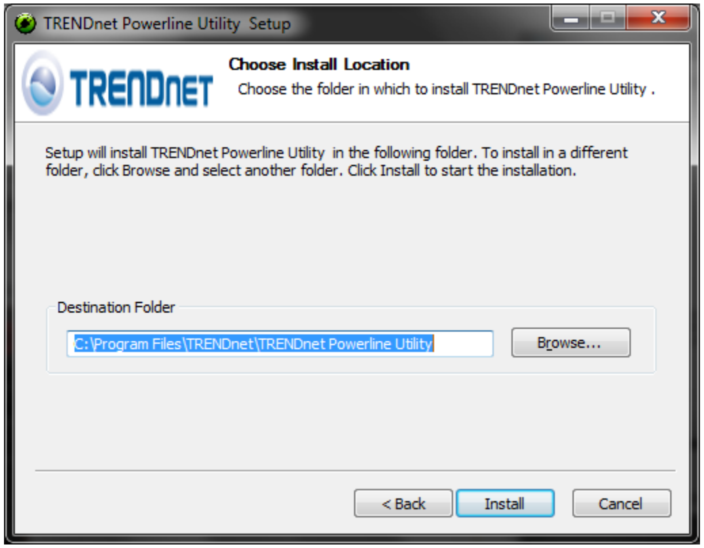
3. At the CD-ROM main menu, click **Install Utility**.



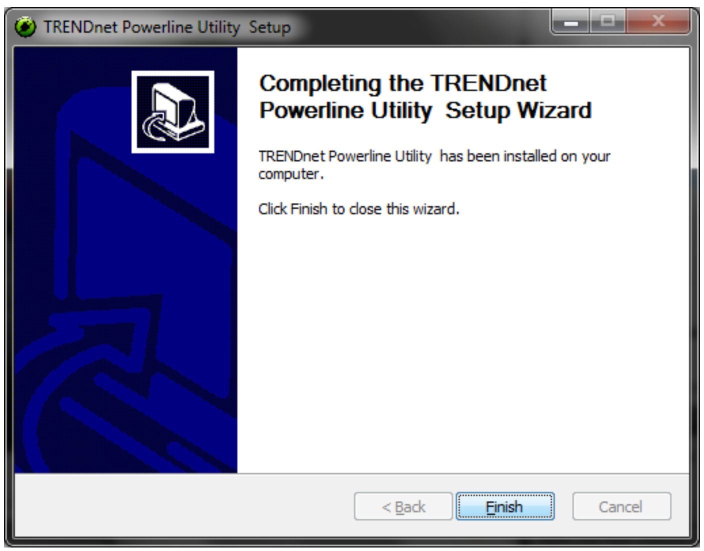
4. At the Powerline Configuration Utility installation window, click **Next**.



5. At the Install Location installation window, click **Install.**

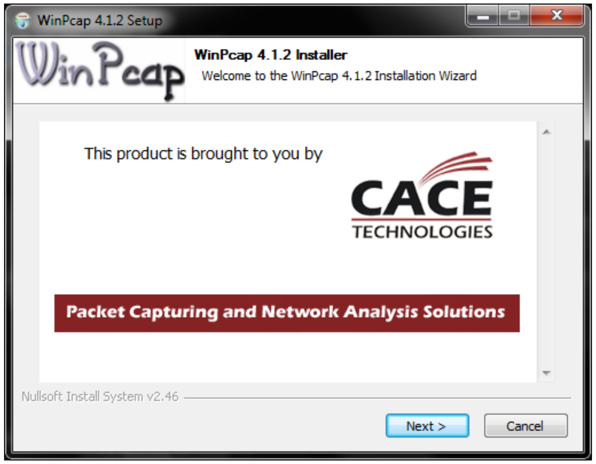


6. In the Completion window, click **Finish**.

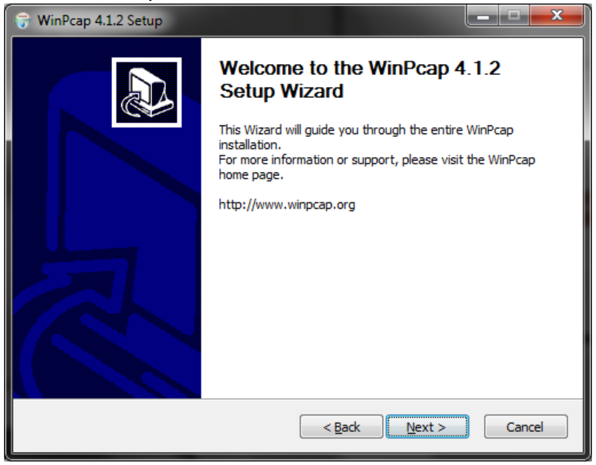


7. At the WinPcap installer window, click **Next**.

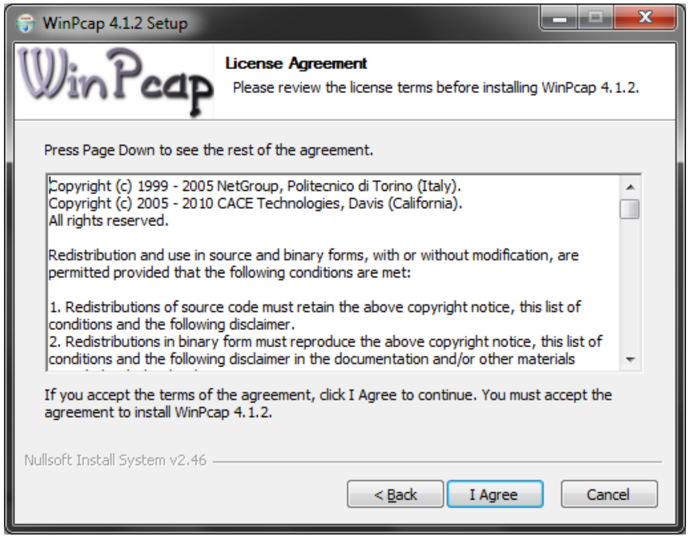
Note: *The Powerline Configuration Utility requires the use of the WinPcap application. If you are prompted to install the WinPcap application, continue through the following steps to complete the installation. Otherwise, if you are not prompted to install WinPcap, reboot your computer to complete the installation.*



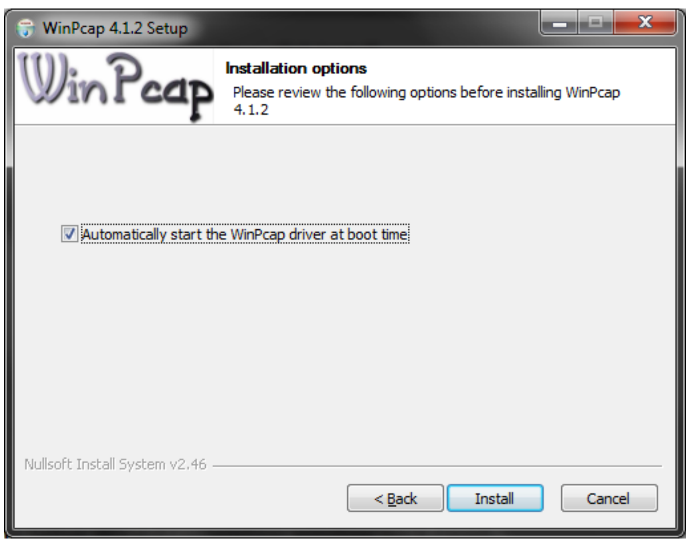
8. In the Setup Wizard window, click **Next**.



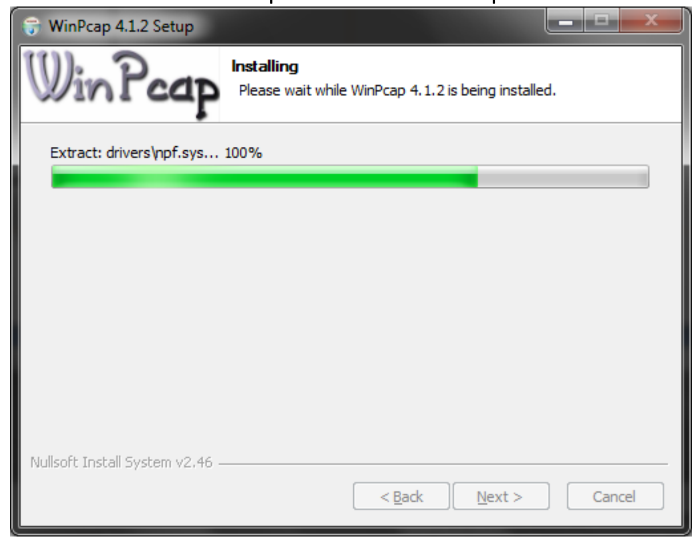
9. In the License Agreement window, click **I Agree**.



10. In the Install Options window, leave the option **Automatically start the WinPcap driver at boot time** checked and click **Install**.



11. Wait for the WinPcap installation to complete.



12. After the process is completed, click **Finish.**



13. Reboot your computer to complete the installation.

Using the Utility

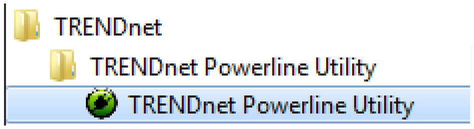
Before using the utility, please ensure the following:

- *Write down the* ***Device Password (DPW)*** *(16-digit characters A-Z only) and* ***MAC Address*** *(12-digit characters a-f, A-F, 0-9) of each Powerline adapter as this will be required to change the encryption key for multiple Powerline adapters. See "Product Hardware Features" on* *page 2*.
- *Make sure your computer in which you are installing the utility is connected to your network and your Powerline adapters are also connected to your network.*
- *If you have changed your encryption key using the* ***Sync*** *button and you are creating a customized encryption key, it is required to reset all Powerline devices to defaults using the physical* ***Reset*** *button on your Powerline adapter first before using the utility. See "Product Hardware Features" on* *page 2*.
- *Please ensure that your Powerline adapters are already installed and connected and the Ethernet port on each adapter is connected to a device powered on.*

Upon completing the software installation, a desktop shortcut is automatically created.
Double-click the icon to start the utility or open the utility if it is already running. Closing the utility will exit the application.

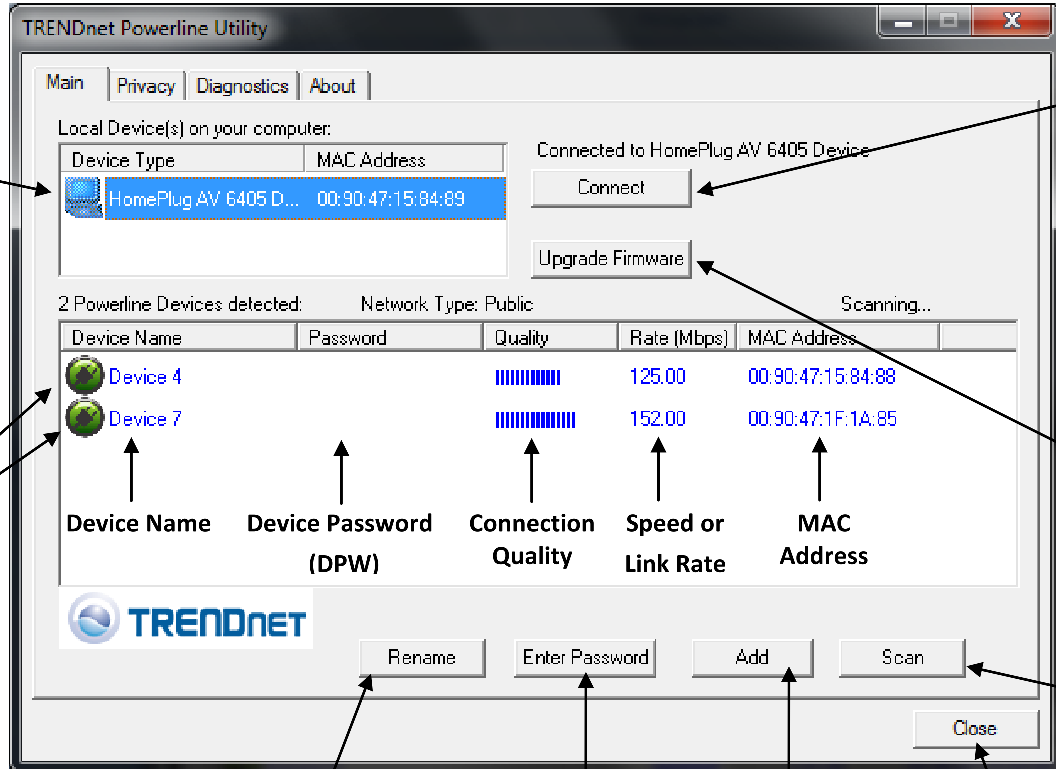


You can also launch the utility from the Start Menu programs.
Start > Programs (or All Programs) > TRENDnet > TRENDnet Powerline Utility



Powerline Utility Overview

Main Window



Local Device

The Powerline adapter connected to your router.

Note: *If your computer is connected directly to your Powerline adapter, the Local Device listed will be the Powerline adapter your computer is directly connected to.*

Remote Devices

Powerline adapters in remote locations that are connected to the selected Powerline adapter (Local Device) across the electrical system.

Note: *If all of your Powerline adapters are already connected to your Powerline network, they will automatically detected and appear in the list. If not, you will need to add them manually.*

Connect

If your Powerline adapter (Local Device) is not detected automatically and does not appear in the list, click Connect to detect and rescan and connect to the Powerline adapter (Local Device) again.

Upgrade Firmware

Allows you to upgrade the Powerline adapter (Local Device) firmware

See page.

Scan

Rescans the Powerline adapters that are connected to your Powerline network

(Remote Device).

Rename

Renames the listed Powerline adapter

(Remote Device).

Enter Password

Allows you to enter the DPW for the listed Powerline adapter(Remote Device)**THIS MUST BE ENTERED FOR ALL DEVICES TO CHANGE THE ENCRYPTION CODE*****

Add

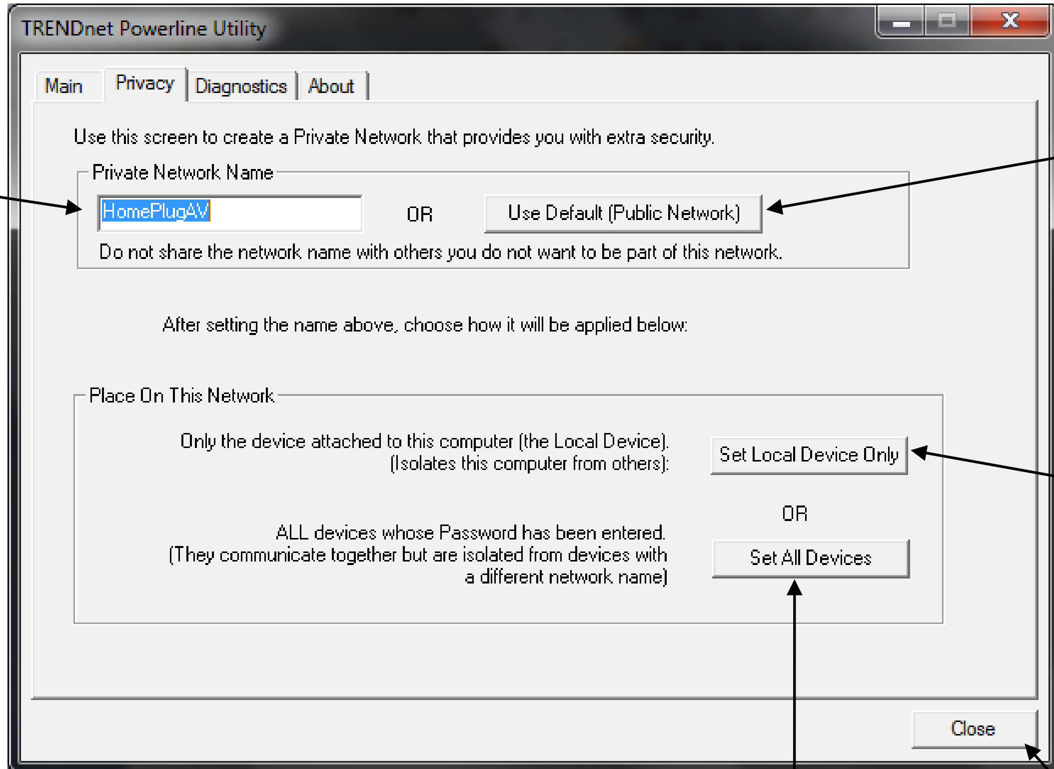
Allows you to add a Powerline adapter to your Powerline network that is not listed (Remote Device).

Close

Closes and exits the Powerline Utility application.

Powerline Utility Overview

Privacy Window



Encryption Key

Encryption key for your Powerline network.

Note: *The default encryption key is* ***HomePlugAV****. If you have used the* ***Sync*** *button to change and generate a random encryption key,* ***Unknown Networkname*** *will be displayed.*

Use Default (Public Network)

Replaces the current encryption key value with the default **HomePlugAV**.

Note: *You will still need to apply the settings to your Powerline adapters by clicking* ***Set Local Device Only*** *or* ***Set All Devices****.*

Set Local Device Only

Changes the encryption key for the Powerline adapter listed as the Local Device on the adapter on the Main window.

Note*: If you change the encryption key for the Powerline adapter (Local Device), this will disconnect the Local Device Powerline adapter from the Powerline network.*

Set All Devices

Changes the encryption key for all or multiple Powerline adapters connected to your Powerline network.

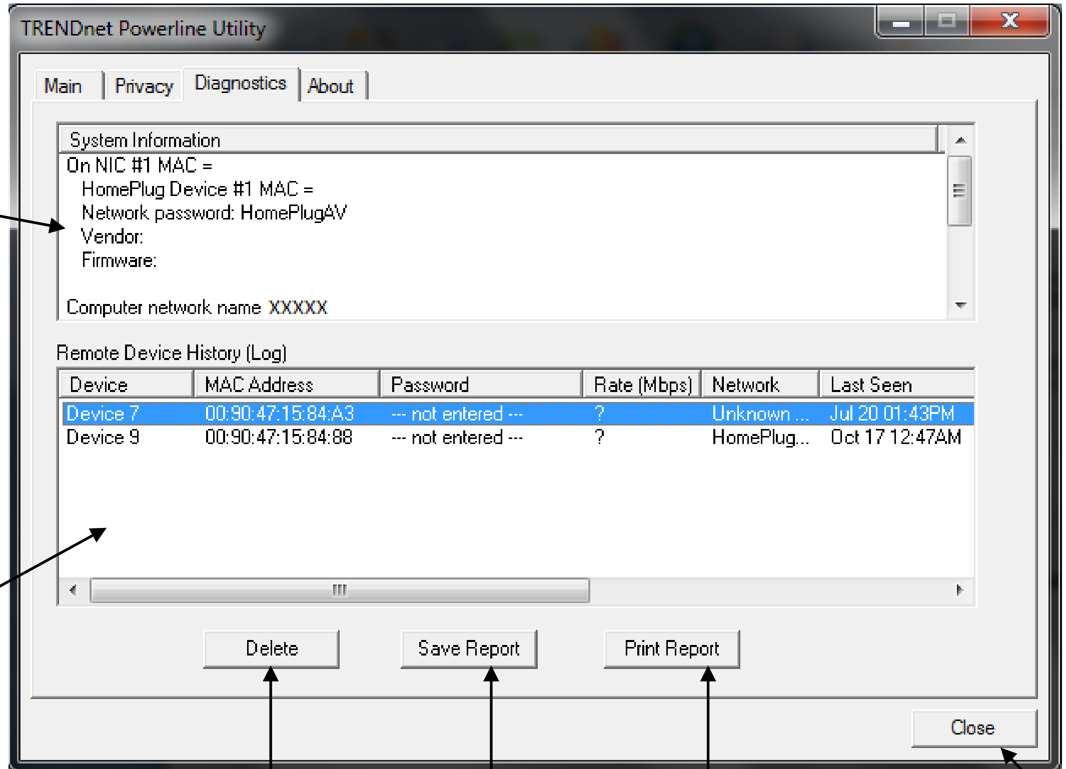
Note: *Please make sure you have added and entered the DPW for all Powerline adapters in your Powerline network before applying this setting. If you do not, the encryption key will not change for any Powerline adapters without the DPW entered.*

Close

Closes and exits the Powerline Utility application.

Powerline Utility Overview

Diagnostics Window



System Information

Displays the device and other related information such as firmware version, MAC address, and encryption key (also called network password).

You can vertically scroll the window to view all of the system information.

Remote Device History (Log)

Displays Powerline adapters or other Powerline devices (Remote Device) that have been previously connected to or discovered on your Powerline Network.

Delete

Deletes or removes the selected entry listed in the Remote Device History (Log)

(Remote Device).

Save Report

Saves the information contained in the System Information window to a text file on your computer.

Print Report

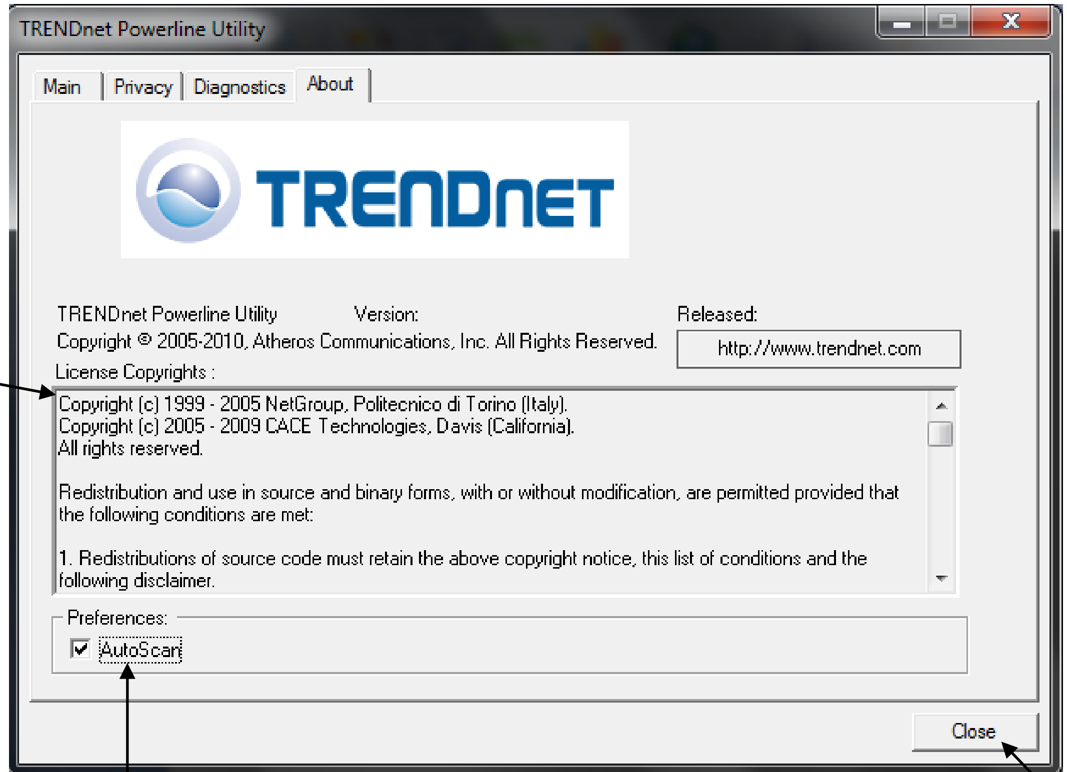
Prints the information contained in the System Information window.

Close

Closes and exits the Powerline Utility application.

Powerline Utility Overview

About Window



System Information

Displays copyright information.

You can vertically scroll the window to view all of the copyright information.

AutoScan

Enables or disables the autoscan feature for automatically discovering Powerline adapter or devices (Remote Device) connected to your Powerline network.

Note: *It is recommended to keep this option checked (Enabled).*

Close

Closes and exits the Powerline Utility application.

Add adapters in the utility and create a customized encryption key

If you have not written down the **Device Password (DPW)** and **MAC address** for each of your Powerline adapters, please do so as it is required to applying the customized encryption key for all of your Powerline adapters using the utility. This information is on the sticker on the inside face of each adapter.

Note: Write down the **Device Password (DPW)** (16-digit characters A-Z only) and **MAC Address** (12-digit characters a-f,A-F,0-9) of each Powerline adapter first before proceeding.

Example:

Location of Powerline Adapter	Device Password (DPW)	MAC Address
At Router	ZAYB-VIMV-YFAQ-ZFPA	00:90:47:15:84:89
John's Room	WECC-ZZYC-WJVY-GZRS	00:90:47:15:84:88
Jane 's Room	UXMA-UOUP-IQXJ-UTYN	00:90:47:1F:1A:85

Note: *It is recommended to ensure that your Powerline adapters are already installed and connected and the Ethernet port on each adapter is connected to a device powered on.*

First, add all of the Powerline adapters to the utility and enter the Device Password (DPW) for each Powerline adapter to ensure you can change the encryption key for multiple adapters. This is required when using the Powerline utility to change the encryption key for multiple Powerline adapters.

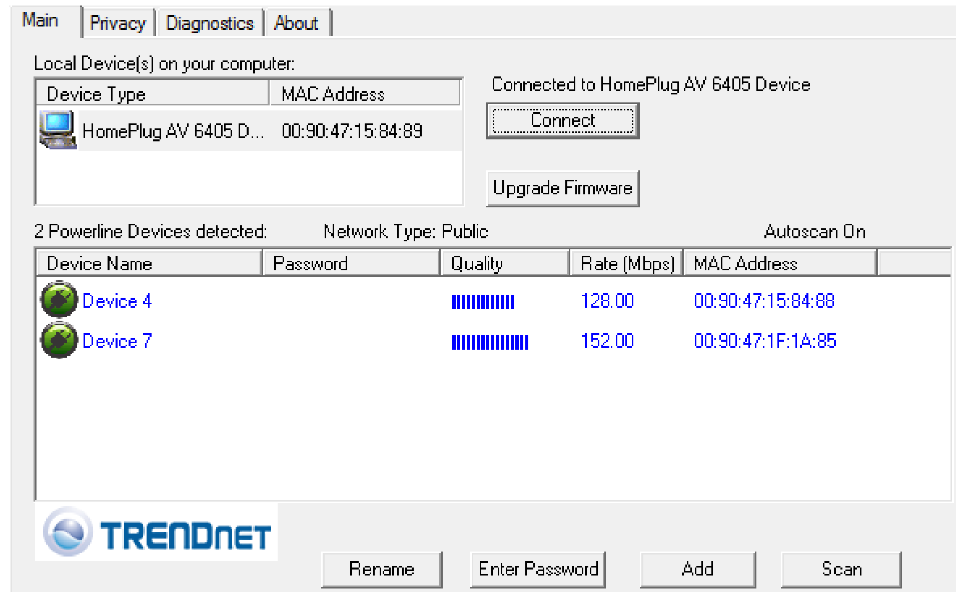
To add automatically detected Powerline adapters to the Powerline Utility

1. Launch the Powerline Utility.

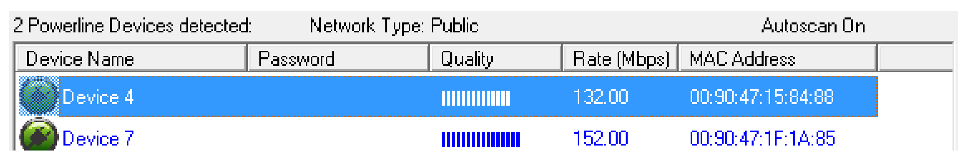


2. In the Powerline Utility Main window, wait for the utility to automatically scan for Powerline adapters already connected to your Powerline network. If your Powerline adapters have already been installed and connected using the same encryption key, they should appear in the Remote Device list.

Note: *If the other Powerline adapters do not appear in the Remote Device list, double-click the Local Device in the list at the top to force a rescan of the network.*



3. Select one of the Powerline adapters listed under Remote Device.



4. Click **Enter Password**.



5. Enter the Device Password (DPW) and click **OK.**

Note: *Match the Device Password (DPW) to the corresponding MAC address.*



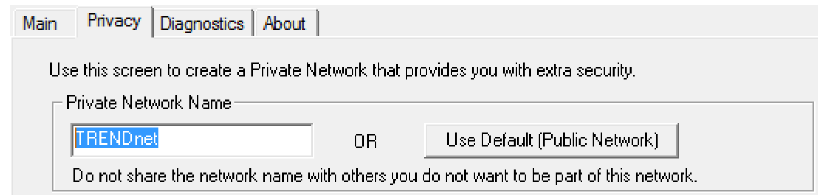
6. If successful, you will receive a message indicating that the password is correct.
Click **OK.**



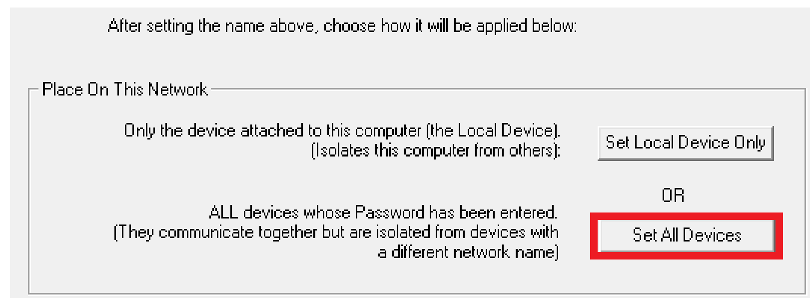
Repeat steps 2-6 for each additional Powerline adapter listed in Remote Device until you have added all of your remaining Powerline adapters before continuing to the next step "To create a customized encryption key".

To create a customized encryption key

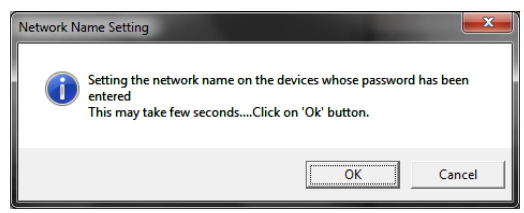
1. In the Powerline Utility Privacy window, under **Private Network Name**, enter the new encryption key for your Powerline network.

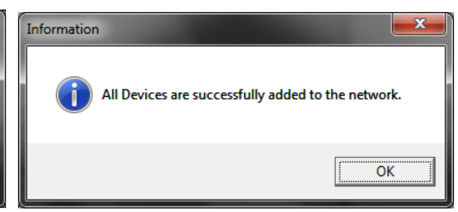


2. After you have entered your new Powerline encryption key, click **Set All Devices**.



3. Click **OK**. If successful, you will receive a message indicating that all Powerline adapters were added to your network verifying that the encryption key was changed for all Powerline adapters. Click **OK**.





To rename the Powerline adapters

Note: *Renaming the Powerline adapters (Remote devices) to describe the location of the device will help you to easily identify which Powerline adapter you are monitoring in the utility.*

1. In the Powerline Utility Main window, select one of the Powerline adapters listed under Remote Device.

2 Powerline Devices detected: Network Type: Public Autoscan On

Device Name	Password	Quality	Rate (Mbps)	MAC Address
Device 4		IIIIIIIIIIII	132.00	00:90:47:15:84:88
Device 7		IIIIIIIIIIIIII	152.00	00:90:47:1F:1A:85

2. Click **Rename**.



3. The device name field will be available to edit.



4. Enter the new device name and press **Enter** on your keyboard.



5. To rename the adapter that is immediately connected to your computer, move your computer to a different adapter and restart the process listed above.

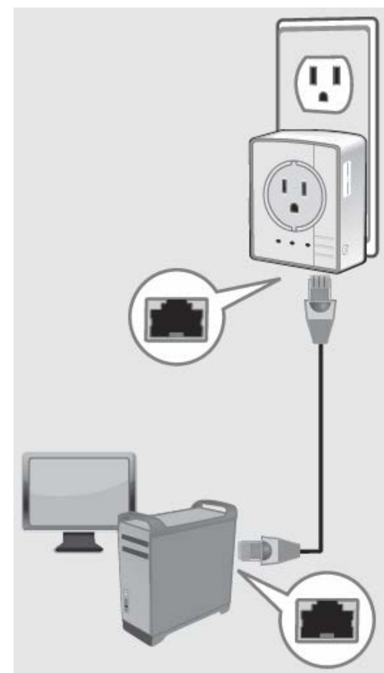
Upgrade Firmware

Note: *The firmware can only be upgraded when your computer is directly connected to the Powerline adapter Ethernet port (also called network port) using an Ethernet cable (also called network cable). The Device Password (DPW) is not required when upgrading the firmware.*

1. To check if firmware updates are available for your Powerline adapter, check your Powerline model. http://www.trendnet.com/downloads/

2. Save the zipped firmware file (.zip) and extract the file to your computer.

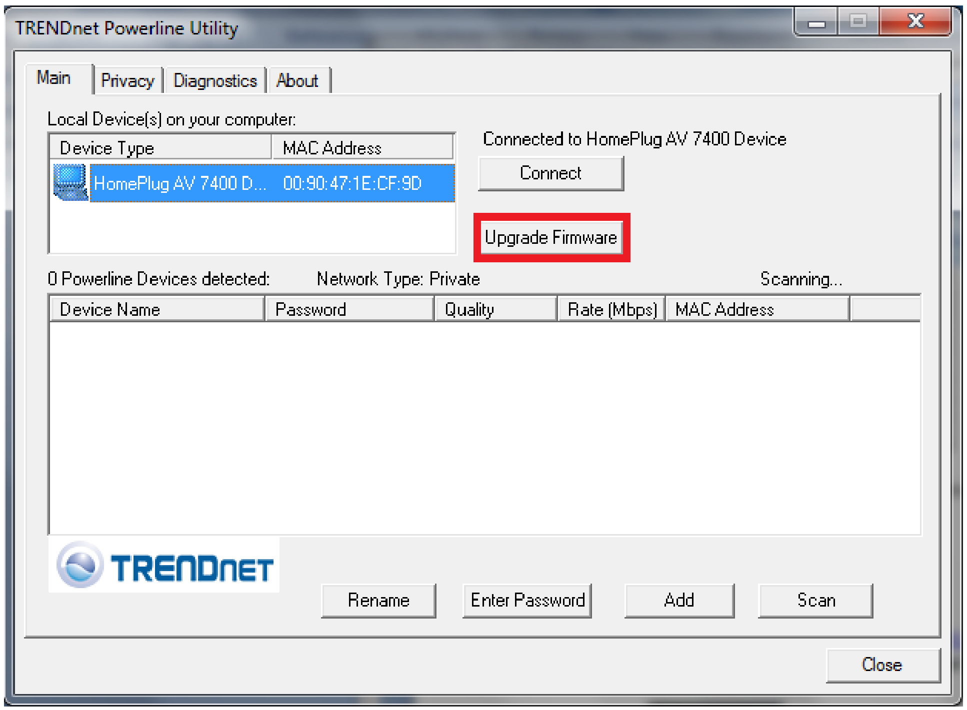
3. Make sure you connect your computer with the utility installed is directly connected to the Powerline adapter using an Ethernet cable (also called network) cable when upgrading the device firmware.



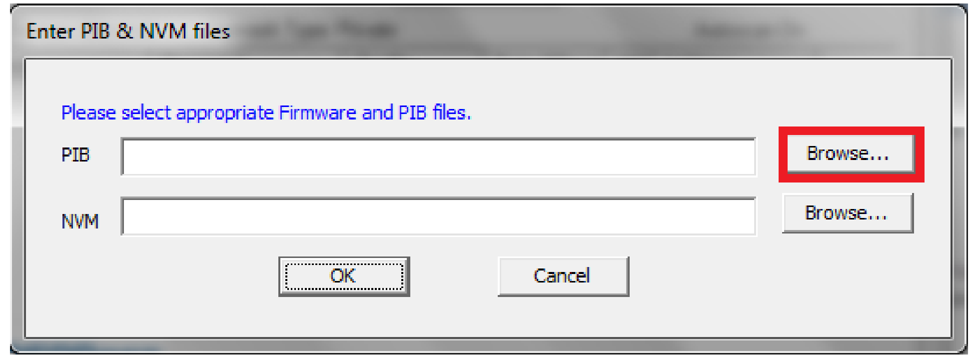
4. Launch the Powerline Utility by double-clicking the icon.



5. The device should appear in the Main window of the utility under Local Device. Click **Upgrade Firmware**.



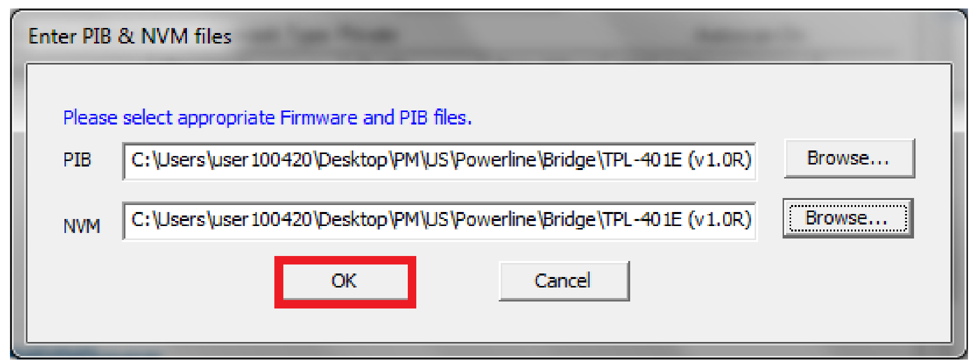
6. Click **Browse** next to the **PIB** field and navigate to the unzipped folder with the firmware files. Select the PIB file. (Ex. TPL-401E-PIB-v50100.pib)



7. Click **Browse** next to the **NVM** field and navigate to the unzipped folder with the firmware files. Select the NVM file. (Ex. TPL-401E-NVM-v5.0.1-0-0-X-FINAL.nvm)



8. Click **OK**.



Wait until the firmware upload completed and the device reboot

Important! Do not turn off the device or press the reset button while this procedure is in progress.

Technical Specifications

Hardware	
Standards	IEEE 1901, HomePlug® AV, IEEE 802.3, IEEE 802.3x, IEEE 802.3u
Interface	• 1 x 10/100 Mbps Auto-MDIX RJ-45 port • 1 x built-in electrical power socket with noise filtering o A: North America Type B (NEMA 5–15) (15A max. @ 120VAC) o EU: European Type F (CEE 7/7) (16A max. @ 250VAC) o FEU/FR: French Type E (CEE 7/7) (16A max. @ 250VAC) o UK : United Kingdom Type G (BS 1363) (13A max. @ 250VAC) • 1 x Sync / reset button • Power prong o A: North America Type B (NEMA 5–15) o EU: European Type E/F Hybrid (CEE 7/7) o FEU/FR: French Type E/F Hybrid (CEE 7/7) o UK : United Kingdom Type G (BS 1363)
Frequency Band	2 ~ 68 MHz
Modulation	OFDM Symbol Modulation on link synchronization, 1024/256/64/8 - QAM, QPSK, BPSK, ROBO Carrier
Protocol	TDMA and CSMA/CA
Speed	Powerline: up to 500 Mbps** Ethernet: Up to 200 Mbps (Full Duplex mode)
Utility OS Compatibility	Windows 7 (32/64-bit), Vista (32/64-bit), XP (32/64-bit)
Nodes	Up to 8 (max.)
Overlapping Powerline Networks	Up to 4 (per electrical system)
Coverage	Up to 300 m (984 ft.)
Security	128-Bit AES (Advanced Encryption Standard)
LED	Power (PWR)
	Powerline (PL) Connection • Green (Best) • Amber (Better) • Red (Good) • Off (No connection) Ethernet (ETH) Connection • Solid (connection) • Blinking (activity) • Off (no connection)
Buttons	Sync (3 sec.) / Reset (20 sec.)
Dimension (L x W X H)	A: 78 x 55 x 59 mm (3.07 x 2.17 x 2.32 in.) per unit EU: 78 x 55 x 77 mm (3.07 x 2.17 x 3.03 in.) per unit FEU/FR: 78 x 55 x 75 mm (3.07 x 2.17 x 2.95 in.) per unit UK: 78 x 55 x 68 mm (3.07 x 2.17 x 2.68 in.) per unit
Weight	A: 102 g (3.6 oz) per unit EU: 138 g (4.87 oz) per unit FEU/FR: 138 g (4.87 oz) per unit UK: 134 g (4.73 oz) per unit
Power Source	100~250V AC, 50~60Hz
Consumption	Active mode: 3 Watts (max.) Standby mode: 0.5 Watts (max.)
Temperature	Operating: 0° ~ 40°C (32° ~ 104°F) Storage: -10° ~ 55°C (14° ~ 131°F)
Humidity	Max. 95% (non-condensing)
Certifications	CE, FCC

* Maximum of 8 adapters (nodes) recommended for streaming video across your network.

** 500Mbps is the maximum theoretical Powerline data rate. Actual throughput will vary depending on environment.

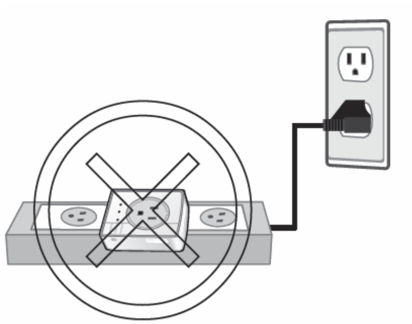
*** Networked Powerline devices need to be plugged into power outlets that are on the same electrical system.

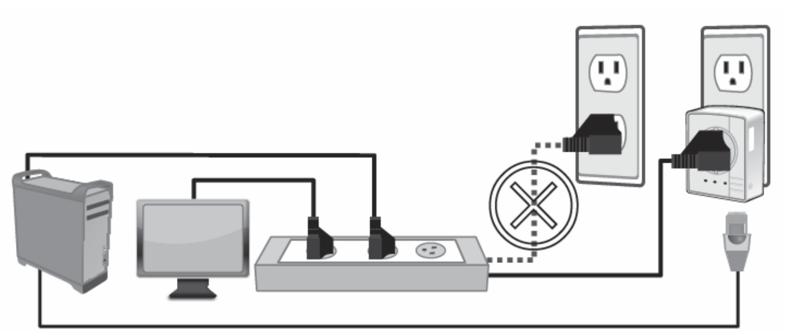
**** GFCI outlets and AFCI circuit breakers may degrade Powerline network signals.

Troubleshooting

Please reference the items below if you continue to experience difficulty with installing and using your Powerline adapters.

- Do not plug the Powerline adapters into a power strip. Make sure to plug the adapters directly into a power outlet and not through power strip. Using adapters through a power strip may negatively affect Powerline connectivity and performance.





- Make sure to use the built-in power outlet for powered devices to filter out noise sources that may affect Powerline connectivity and performance.
- Do not use the Sync button for more than 2 Powerline adapters to connect simultaneously. Wait for each Powerline adapter to connect to your Powerline network one at a time before connecting the next adapter. Using more than one adapter to Sync simultaneously may cause some of your adapters not to Sync and establish connection to your Powerline network.
- Power-cycle the Powerline adapters by disconnecting them from their power outlets for 15 seconds and then reconnect them.
- If the Powerline (PL) LED is red, try plugging the Powerline adapter into another available power outlet. The quality of the connection may be better in a different power outlet.
- If you are having issues connecting the Powerline adapters after changing the encryption key using the Sync button or Powerline utility, reset the Powerline adapters to defaults using the physical Reset button.
- Using a pin or paperclip; press and hold the Reset button for 1 second on each Powerline adapter. All LEDs will turn off then turn back on. This will reset the Powerline adapters to their default settings. The default encryption key is HomePlugAV.
- The Powerline adapters can provide better connectivity and performance when plugged directly into a power outlet. Connecting the Powerline adapters to a power strip or surge protector may degrade or block Powerline signals.
- Avoid using the Powerline adapters on GFI protected outlets and electrical systems with AFCI circuit breakers. They may degrade or block Powerline signals.
- The Powerline adapters should not be used in areas with excessive heat.
- Florescent and incandescent lighting can generate significant Powerline interference.
- If your building has more than one circuit breaker box, the Powerline adapter may not be able to establish connectivity between them. In this case, connect a Powerline adapter into a power outlet located on each of the circuit breaker boxes. Then connect an Ethernet cable between the Powerline adapters to bridge the two circuits together.

In addition to this User's Guide, you can find help below:

- http://www.trendnet.com/support
(documentation, downloads, FAQs, how to contact technical support)

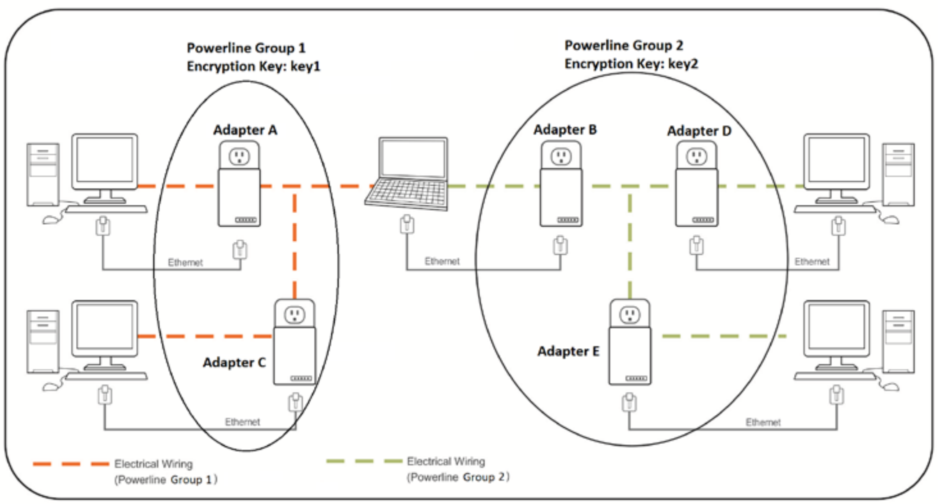
- Autorun CD (Quick Installation Guide)

Appendix

Overlapping Powerline networks

It is possible to create multiple Powerline networks on the same electrical system separated and grouped by different network encryption keys. The Powerline networks will work and communicate independently of each other which can provide security between different groups of Powerline adapters. For example, if you have five powerline adapters (Adapter A, Adapter B, Adapter C, Adapter D, Adapter E), you can group Adapters A,B, and C together on one powerline network and group Adapters D and E on a different Powerline network. Each group will use a different encryption key.

Note: *It is recommended that only a maximum of up to 4 Powerline networks can be created per electrical system. Any additional Powerline networks above the recommended may result in significant degradation in Powerline performance.*



Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination. The firmware setting is not accessible by the end user.

RoHS

This product is RoHS compliant.

Europe – EU Declaration of Conformity

This device complies with the essential requirements of the Directive 2004/108/EC. The following test methods have been applied in order to prove presumption of conformity with the essential requirements of the Directive 2004/125/EC:

- **EN 55022 : 2010**
- **EN 61000-3-2 : 2006 + A2 : 2009**
- **EN 61000-3-3 : 2008**
- **EN 55024 : 2010**
- **EN 50412-2-1 : 2005**
- **EN 60950-1 : 2006 + A11 : 2009**

Česky [Czech]	TRENDnet tímto prohlašuje, že tento TPL-407E je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 2004/108/ES.
Dansk [Danish]	Undertegnede TRENDnet erklærer herved, at følgende udstyr TPL-407E overholder de væsentlige krav og øvrige relevante krav i direktiv 2004/108/EF.
Deutsch [German]	Hiermit erklärt TRENDnet, dass sich das Gerät TPL-407E in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 2004/108/EG befindet.
Eesti [Estonian]	Käesolevaga kinnitab TRENDnet seadme TPL-407E vastavust direktiivi 2004/108/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
English	Hereby, TRENDnet, declares that this TPL-407E is in compliance with the essential requirements and other relevant provisions of Directive 2004/108/EC.
Español [Spanish]	Por medio de la presente TRENDnet declara que el TPL-407E cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 2004/108/CE.
Ελληνική [Greek]	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ TRENDnet ΔΗΛΩΝΕΙ ΟΤΙ TPL-407E ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 2004/108/ΕΚ.
Français [French]	Par la présente TRENDnet déclare que l'appareil TPL-407E est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 2004/108/CE.
Italiano [Italian]	Con la presente TRENDnet dichiara che questo TPL-407E è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 2004/108/CE.
Latviski [Latvian]	Ar šo TRENDnet deklarē, ka TPL-407E atbilst Direktīvas 2004/108/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
Lietuvių [Lithuanian]	Šiuo TRENDnet deklaruoja, kad šis TPL-407E atitinka esminius reikalavimus ir kitas 2004/108/EB Direktyvos nuostatas.
Nederlands [Dutch]	Hierbij verklaart TRENDnet dat het toestel TPL-407E in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 2004/108/EG.
Malti [Maltese]	Hawnhekk, TRENDnet, jiddikjara li dan TPL-407E jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 2004/108/EC.
Magyar [Hungarian]	Alulírott, TRENDnet nyilatkozom, hogy a TPL-407E megfelel a vonatkozó alapvetõ követelményeknek és az 2004/108/EC irányelv egyéb elõírásainak.
Polski [Polish]	Niniejszym TRENDnet oświadcza, że TPL-407E jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 2004/108/EC.
Português [Portuguese]	TRENDnet declara que este TPL-407E está conforme com os requisitos essenciais e outras disposições da Directiva 2004/108/CE.
Slovensko [Slovenian]	TRENDnet izjavlja, da je ta TPL-407E v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 2004/108/ES.
Slovensky [Slovak]	TRENDnet týmto vyhlasuje, že TPL-407E spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 2004/108/ES.
Suomi [Finnish]	TRENDnet vakuuttaa täten että TPL-407E tyyppinen laite on direktiivin 2004/108/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Svenska [Swedish]	Härmed intygar TRENDnet att denna TPL-407E står I överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 2004/108/EG.

Limited Warranty

TRENDnet warrants its products against defects in material and workmanship, under normal use and service, for the following lengths of time from the date of purchase.

TPL-407E / TPL-407E2K – 3 Years Warranty

AC/DC Power Adapter, Cooling Fan, and Power Supply carry 1 year warranty.

If a product does not operate as warranted during the applicable warranty period, TRENDnet shall reserve the right, at its expense, to repair or replace the defective product or part and deliver an equivalent product or part to the customer. The repair/replacement unit's warranty continues from the original date of purchase. All products that are replaced become the property of TRENDnet. Replacement products may be new or reconditioned. TRENDnet does not issue refunds or credit. Please contact the point-of-purchase for their return policies.

TRENDnet shall not be responsible for any software, firmware, information, or memory data of customer contained in, stored on, or integrated with any products returned to TRENDnet pursuant to any warranty.

There are no user serviceable parts inside the product. Do not remove or attempt to service the product by any unauthorized service center. This warranty is voided if (i) the product has been modified or repaired by any unauthorized service center, (ii) the product was subject to accident, abuse, or improper use (iii) the product was subject to conditions more severe than those specified in the manual.

Warranty service may be obtained by contacting TRENDnet within the applicable warranty period and providing a copy of the dated proof of the purchase. Upon proper submission of required documentation a Return Material Authorization (RMA) number will be issued. An RMA number is required in order to initiate warranty service support for all TRENDnet products. Products that are sent to TRENDnet for RMA service must have the RMA number marked on the outside of return packages and sent to TRENDnet prepaid, insured and packaged appropriately for safe shipment. Customers shipping from outside of the USA and Canada are responsible for return shipping fees. Customers shipping from outside of the USA are responsible for custom charges, including but not limited to, duty, tax, and other fees.

WARRANTIES EXCLUSIVE: IF THE TRENDNET PRODUCT DOES NOT OPERATE AS WARRANTED ABOVE, THE CUSTOMER'S SOLE REMEDY SHALL BE, AT TRENDNET'S OPTION, REPAIR OR REPLACE. THE FOREGOING WARRANTIES AND REMEDIES ARE EXCLUSIVE AND ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, EITHER IN FACT OR BY OPERATION OF LAW, STATUTORY OR OTHERWISE, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. TRENDNET NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME FOR IT ANY OTHER LIABILITY IN CONNECTION WITH THE SALE, INSTALLATION MAINTENANCE OR USE OF TRENDNET'S PRODUCTS.

TRENDNET SHALL NOT BE LIABLE UNDER THIS WARRANTY IF ITS TESTING AND EXAMINATION DISCLOSE THAT THE ALLEGED DEFECT IN THE PRODUCT DOES NOT EXIST OR WAS CAUSED BY CUSTOMER'S OR ANY THIRD PERSON'S MISUSE, NEGLECT, IMPROPER INSTALLATION OR TESTING, UNAUTHORIZED ATTEMPTS TO REPAIR OR MODIFY, OR ANY OTHER CAUSE BEYOND THE RANGE OF THE INTENDED USE, OR BY ACCIDENT, FIRE, LIGHTNING, OR OTHER HAZARD.

LIMITATION OF LIABILITY: TO THE FULL EXTENT ALLOWED BY LAW TRENDNET ALSO EXCLUDES FOR ITSELF AND ITS SUPPLIERS ANY LIABILITY, WHETHER BASED IN CONTRACT OR TORT (INCLUDING NEGLIGENCE), FOR INCIDENTAL, CONSEQUENTIAL, INDIRECT, SPECIAL, OR PUNITIVE DAMAGES OF ANY KIND, OR FOR LOSS OF REVENUE OR PROFITS, LOSS OF BUSINESS, LOSS OF INFORMATION OR DATE, OR OTHER FINANCIAL LOSS ARISING OUT OF OR IN CONNECTION WITH THE SALE, INSTALLATION, MAINTENANCE, USE, PERFORMANCE, FAILURE, OR INTERRUPTION OF THE POSSIBILITY OF SUCH DAMAGES, AND LIMITS ITS LIABILITY TO REPAIR, REPLACEMENT, OR REFUND OF THE PURCHASE PRICE PAID, AT TRENDNET'S OPTION. THIS DISCLAIMER OF LIABILITY FOR DAMAGES WILL NOT BE AFFECTED IF ANY REMEDY PROVIDED HEREIN SHALL FAIL OF ITS ESSENTIAL PURPOSE.

Governing Law: This Limited Warranty shall be governed by the laws of the state of California.

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Go to http://www.trendnet.com/gpl or http://www.trendnet.com Download section and look for the desired TRENDnet product to access to the GPL Code or LGPL Code. These codes are distributed WITHOUT WARRANTY and are subject to the copyrights of the developers. TRENDnet does not provide technical support for these codes. Please go to http://www.gnu.org/licenses/gpl.txt or http://www.gnu.org/licenses/lgpl.txt for specific terms of each license.

PWP05202009v2 2012/09/21

Product Warranty Registration

Please take a moment to register your product online.
Go to TRENDnet's website at http://www.trendnet.com/register

TRENDnet
20675 Manhattan Place
Torrance, CA 90501. USA